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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,006	05/05/2005	Ronan Dif	22130-00044-US1	2385
59554 7590 04/24/2008 Womble Carlyle Sandridge & Rice, PLLC Attn: Patent Docketing 32nd Floor P.O. Box 7037 Atlanta, GA 30357-0037			EXAMINER YANG, JIE	
			ART UNIT 1793	PAPER NUMBER
			MAIL DATE 04/24/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/534,006	<b>Applicant(s)</b> DIF ET AL.	
	<b>Examiner</b> JIE YANG	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 11-21, 23-25 and 27-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-10, 22 and 26 is/are rejected.
- 7) ☐ Claim(s) 7, 22 and 26 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/5/2005; 8/30/2005</u> .                                     | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election of "Group I—Claims 1-10, 22, and 26, drawn to a process for making an Al-Zn-Mg plate" in the reply filed on 02/04/2008 is acknowledged without traverse (MPEP 818.03(a)).

Claims 11-21, 23-25, and 27-32 are withdrawn from consideration as being directed to non-elected group and claims 1-10, 22, and 26 are pending for examination.

### ***Claim Objections***

Claims 22 and 26 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. In the instant case, claims 22 and 26 depend on the claims which are withdrawn from consideration as being directed to non-elected group.

Claim 7 is objected to because of the following informalities: the "...to cold from 1% to 9%..." should be "...to cold working reduction in the range from 1% to 9%...".

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 8 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cho (US 4,988,394, thereafter US'394).

Regarding claim 1, US'394 teaches a method of producing an uncrystallized Al-Zn-Mg thin gauge flat rolled product, e.g., plate or sheet (Abstract of US'394). US'394 teaches providing an alloy by casting techniques with continuous casting being preferred (Col.3, lines 19-42 of US'394), which covers semi-continuous casting as recited in the instant claim. The comparisons of compositions between the instant invention and US'394 are listed in the following table. All of the compositions disclosed by US'394 overlap the compositions of the instant invention, which is a prima facie case of obviousness. SEE MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed compositions of Mg, Zn, Mn, Si, Fe, Cu, Ti, Zr, Cr, and Al from the composition disclosed by US'394 because

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US'394 discloses the same utility throughout the disclosed ranges.

Element	From instant Claims (in wt%)	US'394(Cl. 20, and col.2, lines 19-24, in wt%)	Overlapping range (in wt%)
Mg	0.5-2.0	0.5-4.0	0.5-2.0
Zn	3.0-9.0	1.0-12	3.0-9.0
Mn	< 1.0	Max. 1.0	< 1.0
Si	<0.50	Max. 0.5	<0.50
Fe	<0.50	Max. 0.5	<0.50
Cu	<0.50	Max. 3.0	<0.50
Ti	<0.15	Max.0.5	<0.15
Zr	<0.20	Max. 0.5	<0.20
Cr	<0.50	Max. 0.5	<0.50
Al	Balance	Balance	Balance

Regarding the equation of  $Zn/Mg > 1.7$  in the instant claim 1, which fully depends on alloy composition, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art, In re Cooper and Foley 1943 C.D.357, 553 O.G.177; 57 USPQ 117, Taklatwalla v.Marburg. 620 O.G.685, 1949 C.D.77, and In re Pilling, 403 O.G.513, 44 F(2) 878, 1931 C.D.75. In the instant case, in the absence of evidence to the contrary, the selection of the proportions of elements, Zn and Mg from US'394 in order to obtain the claimed equation would appear to require no more than routine investigation by those ordinary skilled in the art. In re Austin, et al., 149 USPQ 685, 688.

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The uncrystallized product as taught by US'394 would be equivalent to the intermediate laminated product as recited in the instant claim because both of these products mean retaining the as-worked texture (Col.3, lines 43-59 of US'394; and Page 9, line 30 to Page 10, line 18 of the instant specification).

Still regarding claim 1 and claim 8, US'394 teaches homogenization performance at the temperature from 850°F to 1050°F (454°C to 566°C—noted by the examiner), which overlap the temperature range  $500^{\circ}\text{C} \leq T_1 \leq (T_s - 20^{\circ}\text{C})$  as recited in the instant claim (Also refer to Fig.1 of the instant specification). US'394 teaches hot rolling at about 800°F (426°C—noted by the examiner), which is within the hot rolling temperature range from  $T_3$  (output temperature) to  $T_2$  (input temperature) as recited in the instant claims 1 and 8. Because US'394 does not specify heating during the hot rolling, it would be obvious to obtain the relationship of  $T_3 < T_2$  as recited in the instant claim 1. US'394 teaches warm rolling at temperature between 350°F to 500°F (177°C to 260°C-- noted by the examiner, Col.4, lines 9-22 of US'394), which overlaps the second hot-rolling input temperature range  $T_5$  (200-300°C) as recited in the instant claim 1. US'394 teaches the warm rolling temperature should not exceed the precipitation heat treatment temperature

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(up to 550°F-- about 288°C-- noted by the examiner), which is within the same temperature range as  $T_4$  ( $T_4 \leq T_5$ ) as recited in the instant claim 1. US'394 further teaches cold working and rolling (which includes the cold coiling--noted by the examiner, Col.4, lines 3-22 of US'394) at temperature from 200°F to 550°F (about 93°C to 260°C--noted by the examiner), which overlaps the coiling temperature  $T_6$  as recited in the instant claim 1.

Regarding claims 2-5, US'394 teaches the 7000 series Al-Zn-Mg (Claim 22 and Col.2, lines 2-34 of US'394) with composition ranges of Zn, Mg, Mn, and Cu overlapping the composition ranges of Zn, Mg, Mn, and Cu as recited in the instant claims 2-4 (refer to the comparison table of compositions between the instant invention and US'394 as listed above). US'394 further teaches adding max. 0.5wt% Sc and Hf in the alloy (Claim 20-21 and 32 of US'394), which reads on the limitation of claim 5.

Regarding claim 6, US'394 teaches the uncrystallized thin gauge plate or sheet having a thickness of 0.125 to 1.25 inch (about 3.2mm to 32mm--noted by the examiner, Col.3, line 43 to Col.4, line 8 of US'394), which overlaps thickness range from 3mm to 12mm as recited in the instant claim.

Regarding claim 22, US'394 teaches the similar continuous casting process as the process disclosed in the instant

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invention, which would inherently include the transport and handling of semi-products. MPEP 2112 III&IV.

Claims 7, 8, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cho (US 4,988,394, thereafter US'394) in view of Mohr et al (WO 92-03586, thereafter WO'586).

Regarding claim 7, US'394 teaches cold working and rolling on the slab (Col.4, lines 3-22 of US'394), and US'394 teaches precipitate heat treatment before cold working in the temperature range of 200°F to 550°F (about 93°C to 288°C—noted by the examiner), and aging treatment in the temperature range of 275°F to 375°F after working (about 135°C to 190°C—noted by the examiner). But US'394 does not specify cold working reduction from 1% to 9%. WO'586 teaches a process of producing an Al-Zn-Mg alloy (Abstract of WO'586) with the composition ranges of alloy (Abstract of WO'586) overlapping the major composition ranges as recited in the instant invention. WO'586 teaches finish rolling by a cold rolling reduction within the range of 2 to 85% which overlaps the reduction range 1 to 9% as recited in the instant claim. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to perform cold working with proper reduction, for example from 1% to 9% as claimed in the instant claim as demonstrated by WO'586 in the



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process of US'394 because WO'586 teaches cold rolling and tempering will lead to desired ductility and strength properties (Abstract of WO'586).

Regarding claim 8, US'394 teaches hot rolling at about 800°F (426°C—noted by the examiner), which is within the hot rolling temperature range from  $T_3$  (output temperature) to  $T_2$  (input temperature) as recited in the instant claim. WO'586 further provides a temperature range from 500°C to 300°C for the hot rolling. This temperature range overlaps the hot rolling temperature range from  $T_3$  (output temperature) to  $T_2$  (input temperature) as recited in the instant claim.

Regarding claim 10, US'394 in view of WO'586 teaches casting, working and heat-treatment processes for 7000 series alloy, which includes 7108 alloy as recited in the instant claim. US'394 in view of WO'586 teaches that the temperature ranges of heat working and treatment overlap or close to the claimed temperature ranges. For example, US'394 teaches homogenization performance at the temperature from 454°C to 566°C, which overlaps  $T_1 = 550^\circ\text{C}$ ; WO'586 discloses a sample that performs homogenize and hot rolling at temperature range from 480 to 595°C, which overlaps  $T_3=490^\circ\text{C}$  (output temperature),  $T_2=540^\circ\text{C}$  (input temperature); US'394 teaches warm rolling at

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temperature between 177°C to 260°C, and 260°C is close to  $T_4 = T_5 = 270^\circ\text{C}$ ; US'394 teaches cold working and rolling from about 93°C to 260°C, which overlaps the coiling temperature  $T_6 = 150^\circ\text{C}$  as recited in the instant claim. Because the temperature ranges of heat working and treatment overlap or are close to the temperature ranges as claimed in the instant claim, it held that US'394 in view of WO'586 has created a prima facie of obviousness of the presently claimed invention. MPEP2144.05 I.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cho (US 4,988,394, thereafter US'394) in view of WO'586 and Saunders (NPL: The modeling of stable and metastable phase formation in multi-component A—alloys, in "Aluminum alloy, their physical and mechanical properties, Proc. ICAA9", eds. J.F.Nie et al, (Inst. Materials Engineering Australia, Melbourn, 2004) pp.96-106, thereafter, NPL-1).

Regarding claim 9, US'394 in view WO'586 teaches hot rolling at about 300°C -500°C which overlaps the hot temperature range from  $T_3$  (output temperature) to  $T_2$  (input temperature) (refer to the discussions in the rejection for the instant claim 8), and 300°C higher than the solvus temperature of the Al-Zn-Mg alloy as recited in the instant claim because the solvus temperature of the Al-Zn-Mg alloy should be in the range of 100°C to 200°C as evidenced by NPL-1 (Refer to Fig.9 and Page 100, 2<sup>nd</sup> paragraph of NPL-1).

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over US'394 in view of WO'586 and further in view of Kinsman et al (US 5,874,708, thereafter US'708).

US'394 in view WO'586 does not specify producing welded construction from the claimed Al-Zn-Mg alloy. US'708 teaches a method of welding aluminum alloy workpieces (Abstract of US'708). US'708 teaches the welded Al alloy includes 7000 series aluminum alloy (Col.5, second paragraph and table of US'708). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make a welded construction as demonstrated by US'708 from the Al-Zr-Mg alloy of US'394 in view WO'586 with expected success because US'708 as well as US'394 in view WO'586 discloses the same 7000 series Al alloy.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jie Yang whose telephone number is 571-2701884. The examiner can normally be reached on IFP.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-2721244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JY

/Roy King/

Supervisory Patent Examiner, Art Unit 1793